REMARKS

Claims 1, 2, 10, 25 and 26 are in the application. Claim 26 has not been rejected. Therefore it is understood that the subject matter of claim 26 is allowable if rewritten in independent form or if ultimately it does not depend from a rejected claim.

The only rejection in the case is the rejection of claims 1, 2, 10 and 25 under 35 U.S.C. 103(a) as allegedly being obvious over Radice et al. ('471) in view of Atkinson et al. ('514). This rejection is respectfully traversed. To further distinguish the teachings of Radice et al., the claims have been now clarified to recite that the extracellular matrix used in the invention is exogenously produced, a feature which is not taught by Radice et al. or Atkinson et al. The present claims recite a method for inducing chondrogenesis comprising the steps of contacting chondrocytes with a composition consisting of an exogenously produced extracellular matrix comprising type I or type II collagen and an effective amount of BMP-4, and culturing the chondrocytes in vitro with this composition. The examiner relies upon Radice et al. as disclosing the use of undifferentiated cells which become chondrocytes by culturing chondrogenic cells which then produce an extracellular matrix. The matrix to which the examiner refers is endogenously produced, that is, the collagen is produced within the cells and then secreted. See Radice et al., Col. 14, lines 50-52. The examiner states that BMP-4 may be optionally added and the composition may be implanted, citing example 10 in Radice et al. However, in example 10, the composition is delivered as an injectable gel with hyaluronic acid. See Col. 21, lines 34-44. Radice et al. discloses use of an injectable gel with hyaluronic acid as overcoming disadvantages of the prior art. See Col. 2, lines 23-27. The prior art is identified by Radice et al. as being implanted cartilage tissue grown in vitro and implanted with collagen gels or matrices of polyanhydrides, polyorthoesters, polyglycolic acid and its copolymers. The disadvantages of these prior art materials as described by Radice et al. are the immune responses directed against the implanted material. The further disadvantage of gels of the prior art is that they do not provide mechanical stability necessary for them to adhere to the site once implanted and to allow reconstruction of the cartilage structure. See Col. 1, lines 57 to Col. 2, line 10. Therefore, it is submitted that the teaching to one of ordinary skill in the art upon reading Radice et al. is not to use a solid matrix and not to use the gels of the prior art, but to rather use a gel of hyaluronic acid to implant chondrocytes. Moreover, even though the chondrocytes initially cultured by Radice et al. secrete endogenously-produced collagen, that collagen is not used as a solid matrix platform since those cells are subsequently mixed with hyaluronic acid to form a gel.

Atkinson et al. is relied upon to disclose that chondrogenic cells secrete both Type I and Type II collagen. However, Atkinson et al. do not dispel the teachings of Radice et al. not to use a solid matrix for implantation of chondrocytes.

It is therefore submitted that it is unobvious over the combination of Radice et al. and Atkinson et al. to use an exogenously produced matrix to culture in vitro with chondrocytes and BMP-4 and then implanting that exogenous matrix, with the cultured chondrocytes, in a site of desired chondrogenesis within the body.

For the foregoing reasons it is submitted that the rejection be withdrawn ad that this application be passed to issuance.

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Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

Reginald J. Suyat
Reg. No. 28,172

P.O. Box 70250
Oakland, CA 94612-0250
(510) 663-1100